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Training Workshop for Developing successful Public-Private Partnerships (PPPs) for increased transport connectivity in Botswana

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Road PPP Funding Models

Background:

- Roads have the potential to be a significant asset to any country—both in terms of the physical investment and the social and economic benefits. A well-maintained and managed road network unlocks the region's productive capacity by linking agricultural areas to national or regional markets, and encourages economic growth and social integration by bringing cities and villages closer together.
- With this in mind, governments are eager to develop and manage their road networks to meet their economic, political and social needs.
- While the public sector is ultimately responsible for roads, the private sector has a potential role to play in the project lifecycle, whether it be in road construction, operation, financing or maintenance.

- The nature of road public-private partnerships (PPPs) varies considerably from project to project and is driven by the local, national and even international factors that make the project a necessity in the first place

Road PPP Funding Models

Issues with PPP Road Projects

Revenues and Traffic Forecasts

- The principal issue in relation to road projects is a viable off-take purchase. Whereas demand for power is relatively calculable, the off-take purchases in a road project are generally individuals and, as a result, demand risk is more difficult to quantify and harder to allocate. In some cases, local populations are asked to pay a toll for a road they have previously used for free.

- It is essential that the toll regime for a transportation project be based on reliable economic, technical and financial assumptions. Lenders will generally undertake their own traffic forecasting exercises to verify those provided by the grantor and the project company. Unfortunately, many traffic forecasts suffer from political orientation, where they are undertaken with the intent to show the need of the local economy for state investment in infrastructure rather than to provide an objective analysis of demand.

- The complexities of traffic forecasts and the cost of risk allocation associated with toll revenues has led to the increasing popularity of Availability Payment Based toll road projects. Availability payments from the Government compensate the project company for making the road available to users and available for travelling on.

Road PPP Funding Models

Issues with PPP Road Projects

Revenues and Traffic Forecasts

- Performance penalty regime will deduct amounts from such payments for defects in the road or the services provided by the project company, such as major maintenance cases, signage, safety, and aesthetics.

- The penalty regime and the key performance indicators (KPI) are even more important in an availability payment regime than under a user-fee based system since the commercial incentives associated with increasing traffic to earn more profit is lost and will need to be replicated through KPIs.

Permitting and Existing Facilities

Road projects are vulnerable to permitting risks associated with the regulatory regimes like noise mitigation, reduction in property value, acquisition of land, resettlement and environmental impact. The construction of toll roads can often interrupt the operation of existing transportation routes, either by roadway or maritime.

Road PPP Funding Models

Issues with PPP Road Projects

Land

- The construction of roads requires a significant amount of land. For this reason, the government will generally be involved in expropriation or procurement of that land and its provision to the project company for construction and use of the road.

Sub Surface Risks

Road projects, in particular tunnels, are vulnerable to subsurface risks, where subsurface conditions encountered differ to those anticipated, requiring changes in construction methodologies and subsequent increases in cost and delays. Often, the grantor will bear the risk of unforeseeable subsurface conditions.

Environmental Risks

A risk that arises frequently in toll road and bridge projects is environmental impact and, in particular, the knock-on sensitivities in the political arena. Roads elicit a large amount of media attention and public anguish because of their visibility and their impact on a multitude of people.

Road PPP Funding Models

Issues with PPP Road Projects

Brownfield Risks

Brownfield road projects can pose a number of unique challenges, perhaps the most obvious being how the road was built in the first place. It's often hard to ask a concessionaire to take risks relating to work done by someone else, which they might not be able to see or adequately assess prior to beginning the project.

Road Safety

With rapidly increasing motorization rates and changing socioeconomic patterns in low and middle-income countries, road safety has become an international public health crisis. Thanks to steadily growing annual incomes, the pace of vehicle ownership in low and middle-income countries has increased and along with it the frequency of road traffic injuries (RTIs). To face this growing issues, the private sector is partnering with governments and civil society to reduce the burden of RTIs.

Road PPP Funding Models

PPP Models in the Road Sector

Toll Concession

In a road concession the government grants the private sector the right to exploit a right-of-way for a fixed period. Typically, in a classic concession approach, the traffic and toll collection risks are with the private sector and it is a purely private endeavor, with minimal to no government stake. There have been some cases, as with the M6 Toll Road in the United Kingdom, where the concessionaire has even been permitted the freedom to set tolls and apply time-of-day adjustments. More frequently, however, the government will regulate the toll, linking them to an index or composite index of some form.

Toll and Traffic Guarantee Concession

- In a toll concession that includes traffic guarantees the private sector takes some but not all of the demand risk of the road. Under this agreement, the concessionaire will get a minimum usage guarantee from the government. Traffic guarantees have been used around the world to mitigate inaccuracies in traffic forecasting and poor due diligence by banks that tend to be overly optimistic. One variant of the traffic guarantee is the so-called “cap and collar” whereby a cash payment is made to the private operator if usage falls below a stated level and the public sector takes all (or a share) of the excess revenue over a stated percentage.

Road PPP Funding Models

PPP Models in the Road Sector

Direct Payment Models: Shadow Tolls and Availability Payments

- In direct payment models, the remuneration for the private partner does not take the form of charges paid by the users of the works or of the service, but of regular payments by the public partner. The two most popular direct payment models are Shadow Tolls and Availability Payments. The former is a demand based model, wherein the government pays the fees for the users. Example of Shadow Tolling project is the M40 Motorway in the UK.

- Availability payment models are based on output standards rather than demand. The contractor has to meet certain output standards set out in detail in the PPP agreement and, so long as the terms are met, the contractor receives payment of a pre-agreed sum. If it fails to do Pure "Availability' based payment structures generally transfer neither of these risks to the private sector. . "Shadow Toll" structures are seen as transferring traffic risk, but not revenue risk and "Real-Tolled" structures are usually considered capable of transferring both risks.

- The advantages and disadvantages of these options are presented in the following table:

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PPP Models in the Road Sector

Road Development Payment Mechanism Options

	Real tolls	Shadow tolls	Availability/ performance base mechanisms
Features	• Road users pay for use of asset	• No actual tolls are collected from public • Usually have banding mechanism, which applies different shadow toll payments to different levels of traffic	• Concessionaire paid for making road available for public use • Sometimes mixed with real tolls [e.g. Ireland] so that concessionaire pays a non-availability payment to authority for road or lane closures out of toll revenue.

Road PPP Funding Models

PPP Models in the Road Sector

Road Development Payment Mechanism Options

	Real tolls	Shadow tolls	Availability/ performance base mechanisms
Features		• Concessionaire is paid by authority on road use – the more the road is used the more the concessionaire is paid	• Amount of deduction/ non-availability payment usually determined by reference to factors including: • length of project road that is unavailable • Number of lanes affected • Duration of unavailability • Time of day of unavailability

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PPP Models in the Road Sector

Road Development Payment Mechanism Options

	Real tolls	Shadow tolls	Availability/ performance base mechanisms
Features		• Common to have 3 bands: ○ Base Case: designed to service senior debt but not to provide return on equity ○ Higher bands: provide a return on equity ○ Top band: usually has a toll rate of zero to cap amount payable to concessionaire	

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PPP Models in the Road Sector

Road Development Payment Mechanism Options

Advantages	• Zero cost to the Government • Government has fiscal space to fund other projects	• Where environment is perceived to be hostile to real tolls, can introduce PPP structures • Prepare way for real-tolled roads in due course by cultivating an industry used to taking traffic risk • Multiple sources of funding can be drawn on by government	• Absence of traffic/ revenue risk simplifies project • Lower level of due diligence needed • Reduces risk on concessionaire – making project cheaper • Removes emphasis on monitoring traffic flows during operational period • No consumer resistance

Road PPP Funding Models

PPP Models in the Road Sector

Road Development Payment Mechanism Options

Advantages		• Mechanism of traffic risk transfer should reduce complexity of project and reduce level of due diligence required	

Road PPP Funding Models

PPP Models in the Road Sector

Road Development Payment Mechanism Options

Disadvantages	• High capital construction costs mean that projects traffic volumes often considered an insufficient revenue stream to meet debt service and equity return for sponsors • Often some form of subsidy/ very long concession period • Reluctance by investors to become involved – costs will be higher to reflect higher risks • Potential consumer resistance to paying for road use and how to mitigate this.	• No revenue generation device – total cost of project falls on public purse • If traffic volumes are significantly in excess of forecasts, government may find itself paying more "toll" than it budgeted for [This happened in Portugal].

Road PPP Funding Models

Output- and Performance-based Contracts

- Output- and performance- based road contracts (OPRCs), which became popular in the 1980s with Argentina's widely known CREMA (Performance-based Road Rehabilitation and Maintenance) contracts, have evolved further in recent years from focusing mostly on routine and periodic maintenance tasks, to include rehabilitation and improvement tasks as performance-based activities. OPRC contracts may cover either individual assets, like traffic signs or bridges, or all road assets within a road corridor or network.
- OPRC projects today often follow the design-build-operate-maintain-transfer methodology, where the contractor designs and completes the required rehabilitation and/or improvements to deliver a certain level of service and thereafter operates and maintains the road for several years.
- As the name stipulates, OPRC projects are based on output as opposed to input. Under a traditional input-based contract the private contractor gets paid for each repaired pothole, whereas under an OPRC the contractor gets paid for each length of road it maintains at the required condition. In return for achieving this standard, the government will periodically pay a fixed amount to the contractor.

Road PPP Funding Models

Benefits of Road Tolling to the Public Sector

- **New, Stable and Dedicated Source of Funding and Finance**. Toll revenues represent a "new" source of revenue, where previously highways were supported out of general government revenues (and were free at the point of use). Tolls provide an incremental and ongoing revenue source, which is not tied to the annual government budgetary process; and importantly can be used as collateral to raise third-party finance (e.g. project finance/PPPs) that can fund further expansion of the road network. The funds from toll revenues are dedicated to support the construction and maintenance of a particular highway and therefore do not compete with the requirements of other highways in the network.
- **Applies the "'User Pays' principle and the Internalization of External Costs**. Some governments have introduced tolls in pursuit of a general policy to increase the extent of "use related payment" or with the goal of reducing highway use and internalizing the negative effects of highway usage (e.g. congestion, air pollution and accidents). Charging for highway usage is central to a 'sustainable' transport policy. The "user-pay" principle is considered a fair and precise way of paying for transportation facilities.
- **Facilitates Private Sector Development**. Some governments have sought private sector participation in highway provision and to develop the private sector within their economy. The involvement of the private sector can allow the government to finance at least part of the highway development 'off balance sheet'.
- **Toll revenues can also be used to promote regional equity through cross-subsidization of highway construction and maintenance.** Some countries, including France and Japan, have introduced tolls on one highway in order to support the development of infrastructure networks in less developed regions

Road PPP Funding Models

Potential Disbenefits of Road Tolls

The introduction of a toll charge on new or upgraded highways can have far-reaching consequences. Some of these consequences will be deliberate, such as the generation of revenue, but others may not have been foreseen. Intentional and unintentional consequences of tolling may include:

Cost Recovery

Traffic and toll tariff levels may not be sufficient to cover all costs, including construction, operation and maintenance. In developing countries where traffic levels are low or where construction costs are high, it is unlikely that the toll revenues will ever cover more than operation and maintenance and perhaps a part of the construction cost. Tolling is therefore not a complete solution for low-trafficked highways requiring significant capital expenditure. Additional funding will be required from sources such as government subsidy, public (e.g. from development banks) or private borrowing.

Revenue Risk

Whether the risk is held by the public sector, the private sector or shared, there is always a risk that outturn toll revenues may be insufficient to cover debt payments and operating costs which may lead to bankruptcy or sovereign debt guarantees to banks for payment of the debt.

Road PPP Funding Models

Potential Disbenefits of Road Tolls

Diversion of Traffic away from New Road

Price elasticity of demand and the provision of toll-free alternatives to the tolled highway, will affect the level of traffic on the facility. In turn this may mean that some potential economic benefits of the new highway are lost since the objective of new highway provision is to move people and goods more reliably and quickly.

Social Impacts

Just as with any highway, toll highways can have positive and negative social impacts in the manner and location of their construction and in their operation. Of particular concern is the potential inequity that can result from charging low-income users, particularly those who use the road frequently.

Political and Public Opposition

Political opposition to highway tolling has been significant in some countries. There is also a common misconception that tolls are a form of double taxation. Motorists often perceive that they are paying for the highway twice, by paying a toll and through their taxes, when in fact their taxes are being used to fund other highway.

Road Funding PPP

Examples of Non Toll Road Funding Programmes

- **Roadway Around the Periphery of Sao Paolo City - Brazil**. Concession for a peripheral road in Sao Paolo, Brazil, which is primarily for transport of goods and cargo from the interior of the country to the port of Santos. The project is divided in several subsections; each section finances the construction of the next phase.
- **British Columbia - Sea-to-Sky Highway Improvement DBFO** - DBFO Concession Agreement for design, build and financing of improvements to Sea-to-Sky Highway in BC, Canada. The Concession is for 16 years. The DBFO Contractor is paid Total Performance Payments (based on Availability Payment, Vehicle Usage payment and Performance Incentives). DBFO Contractor is not to charge tolls/ user charges.
- **Corredor Turístico (El Progreso-Tela, San Pedro Sula – El Progreso y La Barca – El Progreso) – Honduras.** Concession Agreement for the construction, operation, transfer, and maintenance of a 122-km, four-lane highway along the Atlantic side of Honduras ("touristic corridor") under a design, finance, build, operate, transfer (DFBOT) scheme (Spanish).
- **The M40 Motorway in the UK-** links London to Birmingham in the West Midlands-was developed a PPP Shadow Toll Road scheme with a concession period of 20 years.
- **The M25 Motorway in the UK**-developed as the largest PPP road project and not tolled. Forms a ring road around London and serves important nodes such as Heathrow International Airport.